CLAIMS

I CLAIM:

1. A method of measuring, for a signal S, the Unit Interval of a logical ONE, the method comprising the steps of:

(a) initializing a register R of k-many cells R:[1-k] to all ONEs; and then subsequently

(b) delaying each transition in the signal S by selected amounts of k-many successive consecutive delays to produce a respective collection of Delayed Signals DS:[1-k], DS:(i+1) being delayed from DS:i, i= 1, 2, ..., k-1, the cumulative amount of delay from a transition in S to the corresponding transition in DS:k being at least as long as the longest unit interval to be measured;

(c) clocking logical ZEROs among the DS:[1-k] into the corresponding and respective cells R:[1-k] upon a ONE-to-ZERO transition in the signal S to clear those cells while not using any ONEs to set their respective cells;

(d) repeating steps (b) and (c) for a selected duration; and then

(e) capturing the values of the k-many cells R:[1-k] and taking remaining ONEs therein as an indication, in units corresponding to the consecutive delays, of the Unit Interval of a logical ONE for the signal S.

2. A method as in claim 1 further comprising the step of selecting in step (b) each of the k-many delays to be equal.

3. A method as in claim 1 further comprising the step of selecting in step (b) at least the delay for producing DS:1 to be significantly greater than the delays for producing the other DS:i.

4. A method of measuring, for a signal S, the Unit Interval of a logical ZERO, the method comprising the steps of:

(a) initializing a register R of k-many cells R:[1-k] to all ZEROs; and then subsequently

(b) delaying each transition in the signal S by selected amounts of k-many successive consecutive delays to produce a respective collection of Delayed Signals DS:[1-k], DS:(i+1) being delayed from DS:i, i= 1, 2, ..., k-1, the cumulative amount of delay from a transition in S to the corresponding transition in DS:k being at least as long as the longest unit interval to be measured;

(c) clocking logical ONEs among the DS:[1-k] into the corresponding and respective cells R:[1-k] upon a ZERO-to-ONE transition in the signal S to set those cells while not using any ZEROs to clear their respective cells;

(d) repeating steps (b) and (c) for a selected duration; and then

(e) capturing the values of the k-many cells R:[1-k] and taking remaining ZEROs therein as an indication, in units corresponding to the consecutive delays, of the Unit Interval of a logical ZERO for the signal S.

5. A method as in claim 4 further comprising the step of selecting in step (b) each of the k-many delays to be equal.

6. A method as in claim 4 further comprising the step of selecting in step (b) at least the delay for producing DS:1 to be significantly greater than the delays for producing the other DS:i.

7. A method of measuring the Unit Interval for a signal S, the method comprising the steps of:

(a1) initializing a register RONE of k-many cells RONE:[1-k] to all ONEs; and also

(a2) initializing a register RZERO of k-many cells RZERO:[1-k] to all ZEROs; and then subsequently

(b) delaying each transition in the signal S by selected amounts of k-many successive consecutive delays to produce a respective collection of Delayed Signals DS:[1-k], DS:(i+1) being delayed from DS:i, i= 1, 2, ..., k-1, the cumulative amount of delay from a transition in S to the corresponding transition in DS:k being at least as long as the longest unit interval to be measured;

(c1) clocking logical ZEROs among the DS:[1-k] into the corresponding and respective cells RONE:[1-k] upon a ONE-to-ZERO transition in the signal S to clear those cells while not using any ONEs to set their respective cells;

(c2) clocking logical ONEs among the DS:[1-k] into the corresponding and respective cells RZERO:[1-k] upon a ZERO-to-ONE transition in the signal S to set those cells while not using any ZEROs to clear their respective cells;

(d) repeating steps (b), (c1) and (c2) for a selected duration; and then

(e1) capturing the values of the k-many cells RONE:[1-k] and taking remaining ONEs therein as an indication, in units corresponding to the consecutive delays, of the Unit Interval of a logical ONE for the signal S; and also

(e2) capturing the values of the k-many cells RZERO:[1-k] and taking remaining ZEROs therein as an indication, in units corresponding to the consecutive delays, of the Unit Interval of a logical ZERO for the signal S .

8. A method as in claim 7 further comprising the step of selecting in step (b) each of the k-many delays to be equal.

9. A method as in claim 7 further comprising the step of selecting in step (b) at least the delay for producing DS:1 to be significantly greater than the delays for producing the other DS:i.

10. A method as in claim 7 further comprising the step of combining into a single value the values captured and taken in steps (e1) and (e2) .

11. A method as in claim 10 wherein the step of combining is averaging .